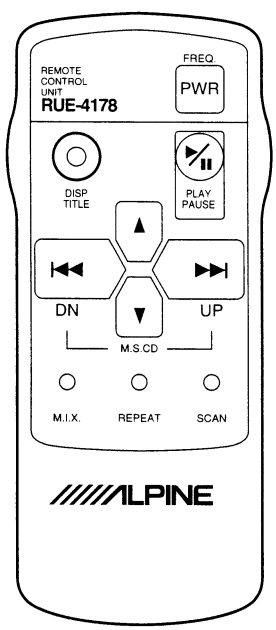
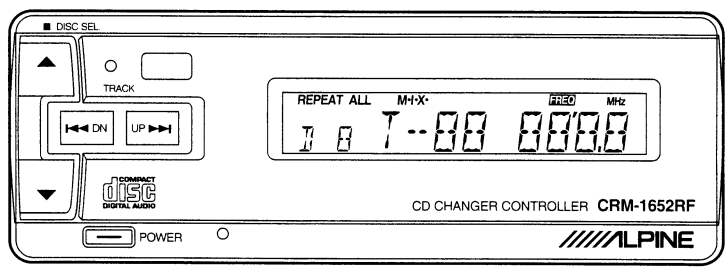
ALPINE®

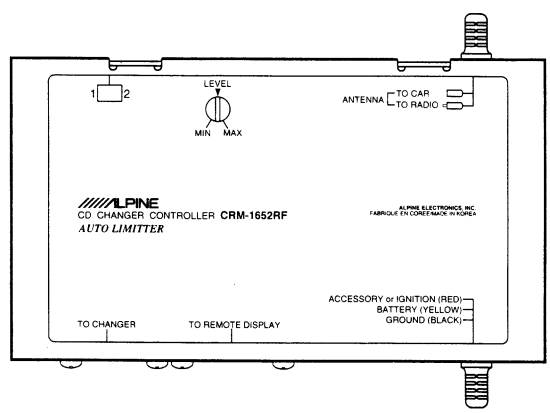
SERVICE MANUAL

CD Changer Controller

COMPACT disc DIGITAL AUDIO







CRM-1652RF

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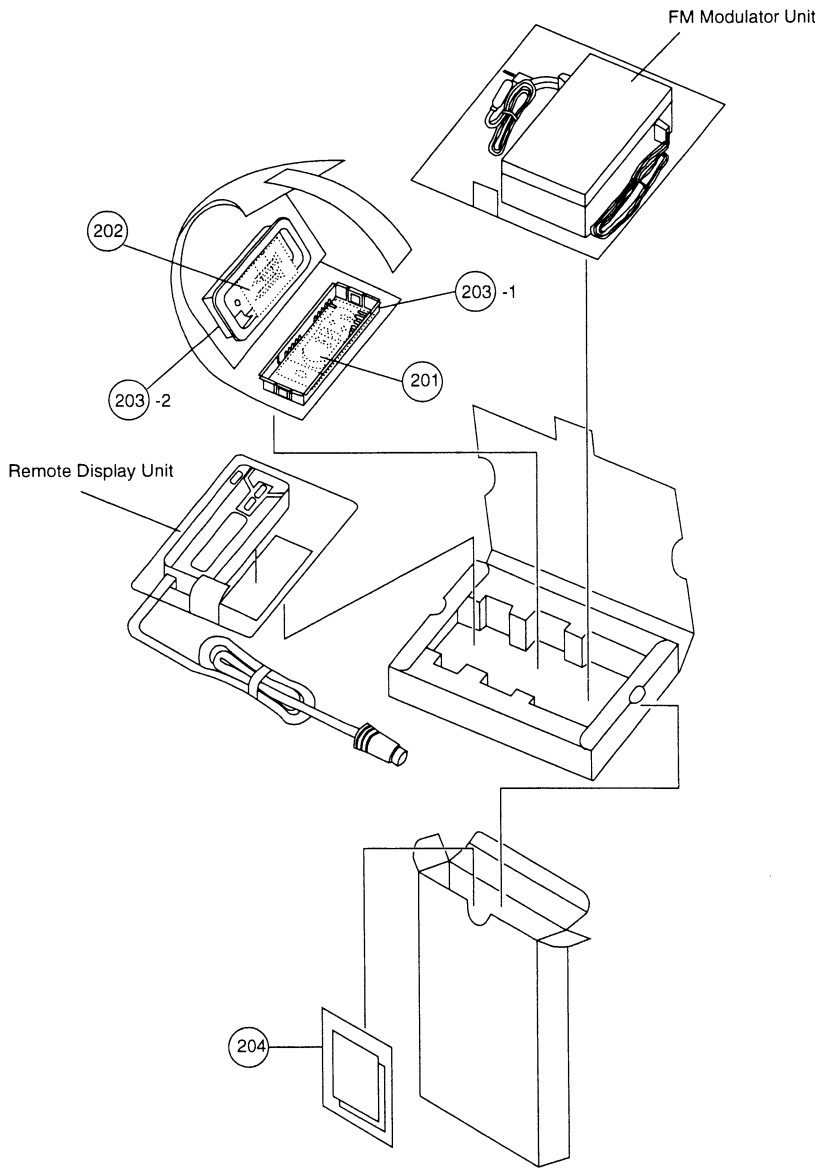
Packing Assembly Parts List

Symbol No.	Part No.	Description
201	01T75235W08	Assy., Card Remocon
202	03E25256S01	Screw, Tapping (M2.9X20)
203-1	07E25452S01	Bracket, Mount
203-2	15E25453S01	Case, Flash Mount
204-1	68P91666W62	Owner's Manual
204-2	68P91666W63	Owner's Manual (I/G/S)

Symbol No.	Part No.	Description

Packing Method View



Specifications

RF Output Frequency	87.7~89.9MHz
RF Output Level / Impedance	70±6dBμ / 75 ohm
Modulation Sensitivity (850mV IN, LEVEL MAX.)	4±3dB
Power Supply	14.4V DC
Semiconductors	Remote Display Unit : 3IC's, 13Transistors, 4Diodes, 2Zener Diodes
	FM Modulator Unit : 4IC's, 20Transistors, 10Diodes, 5Zener Diodes
Dimensions (W×H×D)	Remote Display Unit : 113×39.5×19mm
	FM Modulator Unit : 130×35×74mm
Weight	Remote Display Unit : 0.18kg
	FM Modulator Unit : 0.4kg

NOTE : Due to Continuing product improvement, specifications and designs are subject to change without notice.

Adjustment Procedures

Phase Adjustment

1. Connection

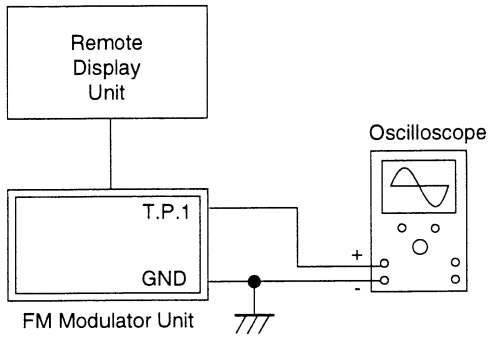


Figure 1

2. Power Supply ..... DC 14V
3. Control Settings
   Frequency Setting Mode ..... ON (88.7MHz)
4. Adjustment Procedures
   Adjust VR001 so that the point "A" on the waveform at T.P.1 becomes flat as shown in Figure 2.

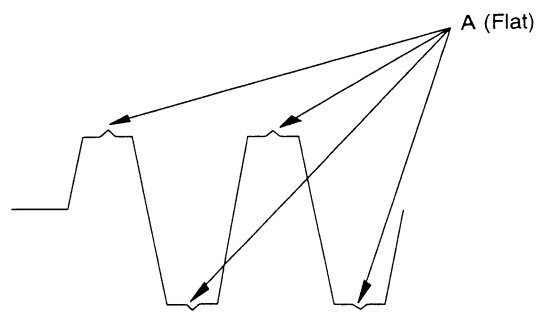


Figure 2

NOTE : For the Adjustment parts and Test Point, refer to the Parts Layout on P.C. Boards and Wiring Diagram.

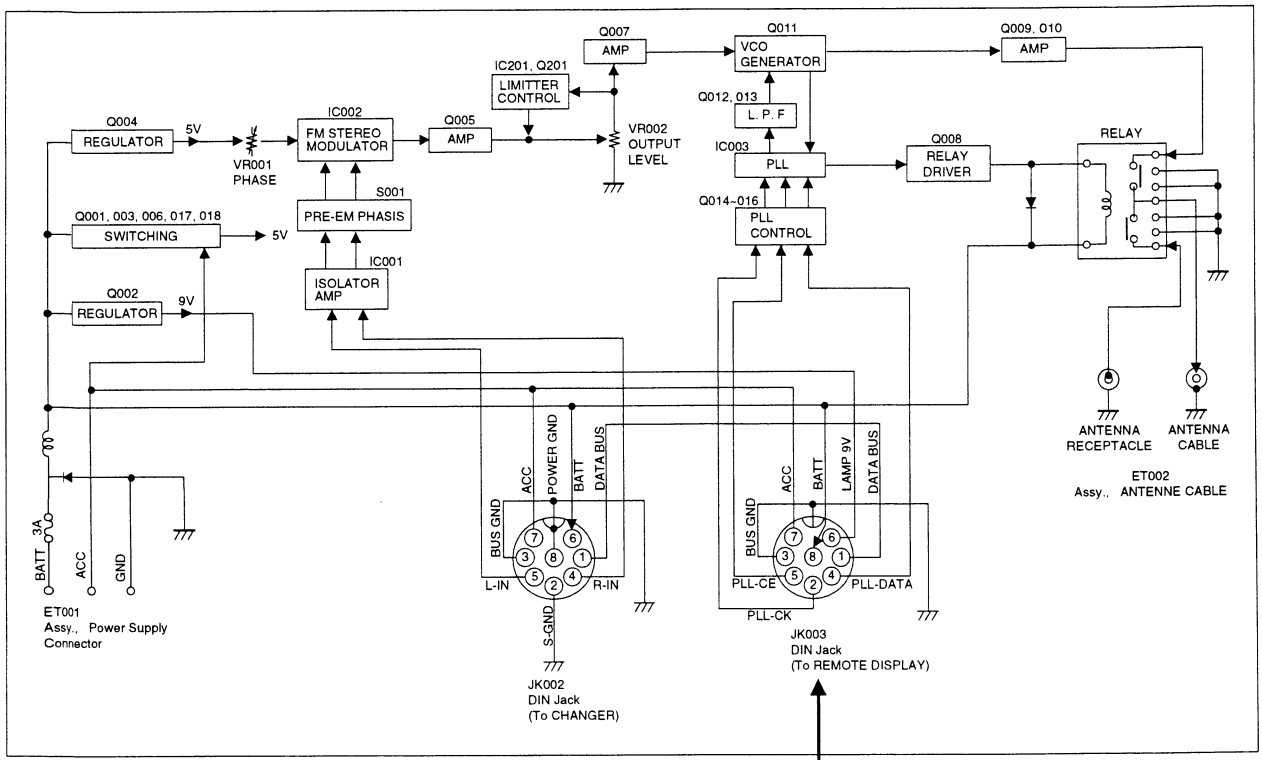
Description of IC Terminal

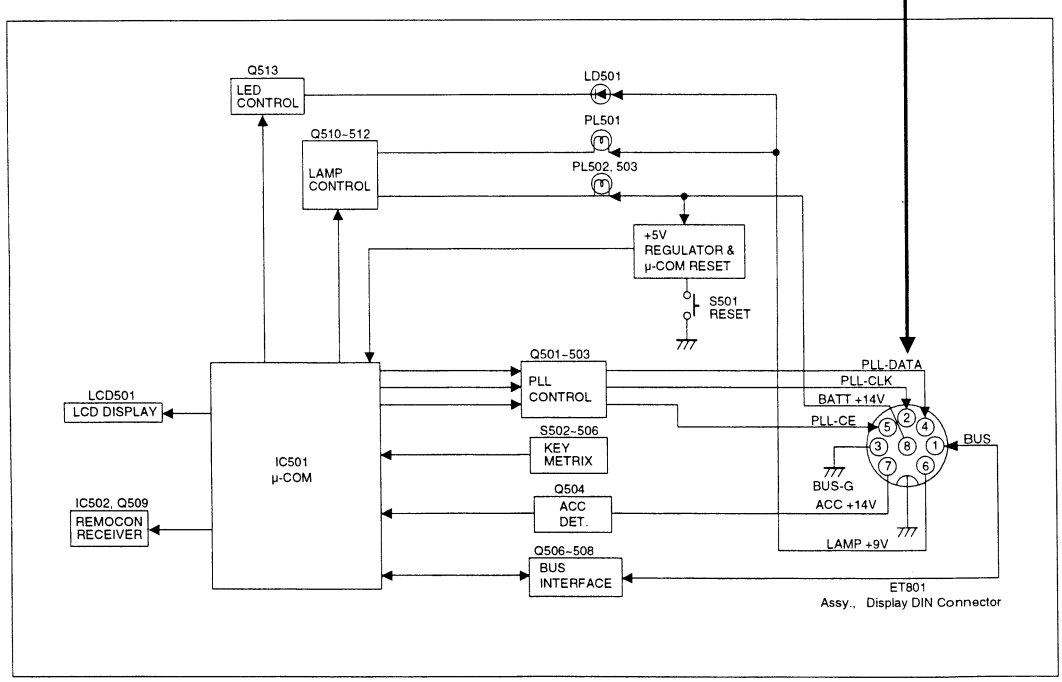
95030W01 : IC501

No.	Symbol	I/O	Terminal Description
1	V_{DD}	—	+5V Power Supply Connect Terminal.
2 ~ 12	NC	—	No Connect Terminal.
13	VLCD3	I	Bias Voltage Input Terminal for LCD Driver.
14	VLCD2		
15	VLCD1		
16	GND	—	GND Connect Terminal.
17	V_{PP}	—	+5V Connect Terminal.
18	GND	—	GND Connect Terminal.
19	NC	—	No Connect Terminal.
20	$\overline{\text{RESET}}$	I	Reset Signal Input Terminal. (L : Active)
21	X'TAL1	I	System Clock Connect Terminal. (4.19MHz)
22	X'TAL2	O	
23	$\overline{\text{REM+B}}$	O	Power Supply Connect Terminal for Remocon Receiver.
24	NC	—	No Connect Terminal.
25	GND	—	GND Connect Terminal.
26	L-CONT	O	Power Supply Connect Terminal for LCD Backlight.
27	REM-IND	O	Remote Indicator Output Terminal.
28	PLL-CE	O	PLL-CE Output Terminal.
29	PLL-CLK	O	PLL-CLK Output Terminal.
30	PLL-DATA	O	PLL-DATA Output Terminal.
31	POWER-ON	I	Key Data Input Terminal.
32	DISC UP		
33	DISC DN		
34	PLAY / PAU		
35	MS-UP		
36	MS-DN		
37	M.I.X.		
38	REPEAT		
39	SCAN		
40	GND	—	GND Connect Terminal.
41	REMOCON1	I	Remocon Data Input Terminal.
42	REMOCON2		
43	$\overline{\text{B-HOLD}}$	I	Battery Detect Signal Input Terminal.
44	BUS-OUT	O	BUS Signal Output Terminal.
45	BUS-IN	I	BUS Signal Input Terminal.
46	$\overline{\text{A-HOLD}}$	I	ACC Detect Signal Input Terminal.

No.	Symbol	I/O	Terminal Description
47	V_{DD}	—	+5V Power Supply Connect Terminal.
48	NC	—	No Connect Terminal.
49	NC	—	No Connect Terminal.
50	COM1	O	LCD Common 1 Output Terminal.
51	COM2	O	LCD Common 2 Output Terminal.
52	SEG1	O	LCD Control Ouput Terminal.
53	SEG2		
54	SEG3		
55	SEG4		
56	SEG5		
57	SEG6		
58	SEG7		
59	SEG8		
60	V_{SS}	—	GND Connect Terminal.
61	SEG9	O	LCD Control Output Terminal.
62	SEG10		
63	SEG11		
64	SEG12		
65	SEG13		
66	SEG14		
67	SEG15		
68	SEG16		
69	SEG17		
70	SEG18		
71	SEG19		
72	SEG20		
73	SEG21		
74	SEG22		
75	SEG23		
76	SEG24		
77	SEG25		
78	SEG26		
79	SEG27		
80	SEG28		

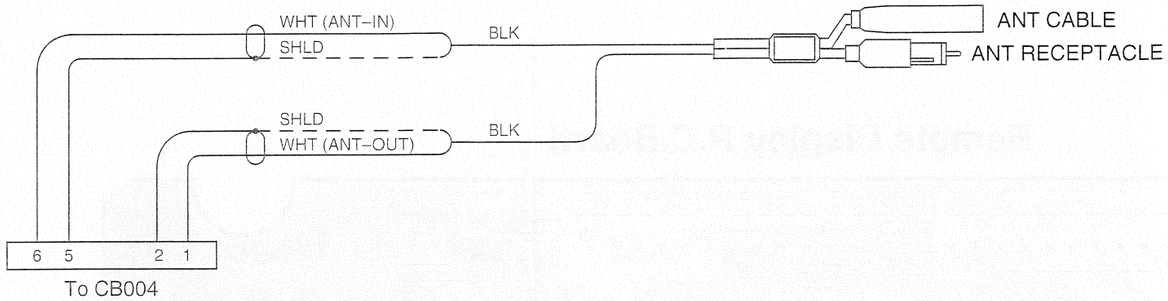
Block Diagram



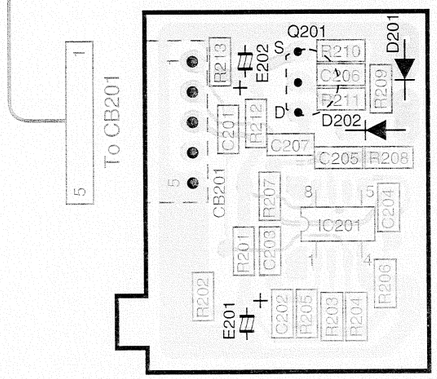


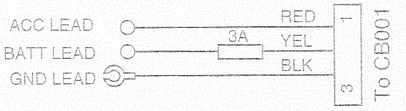
Parts Layout on P.C. Boards and Wiring Diagram (1/2)

All P.C. Boards viewed from soldered side.



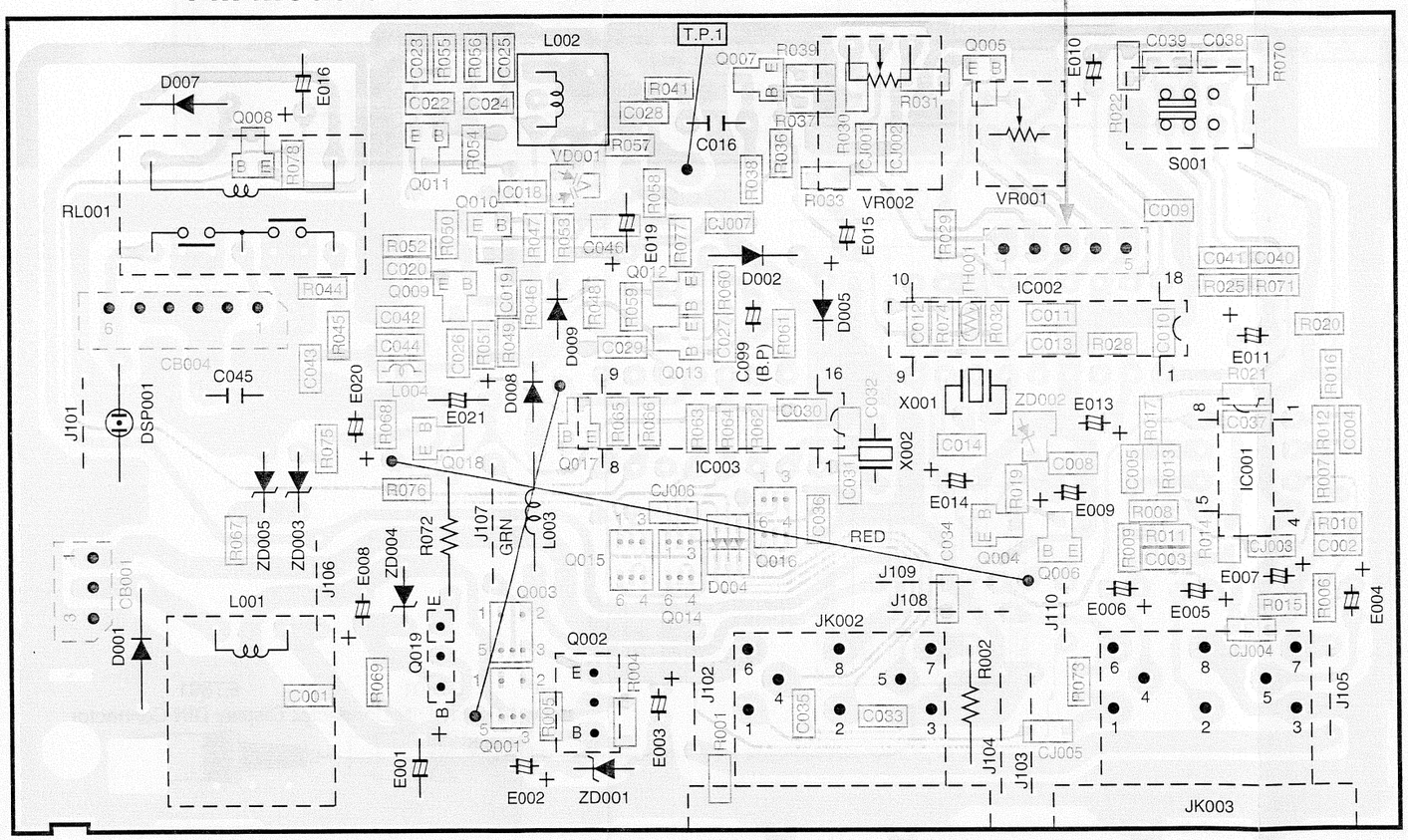
Limit P.C.Board





ET001
Assy., Power Supply Connector

FM Modulator P.C.Board

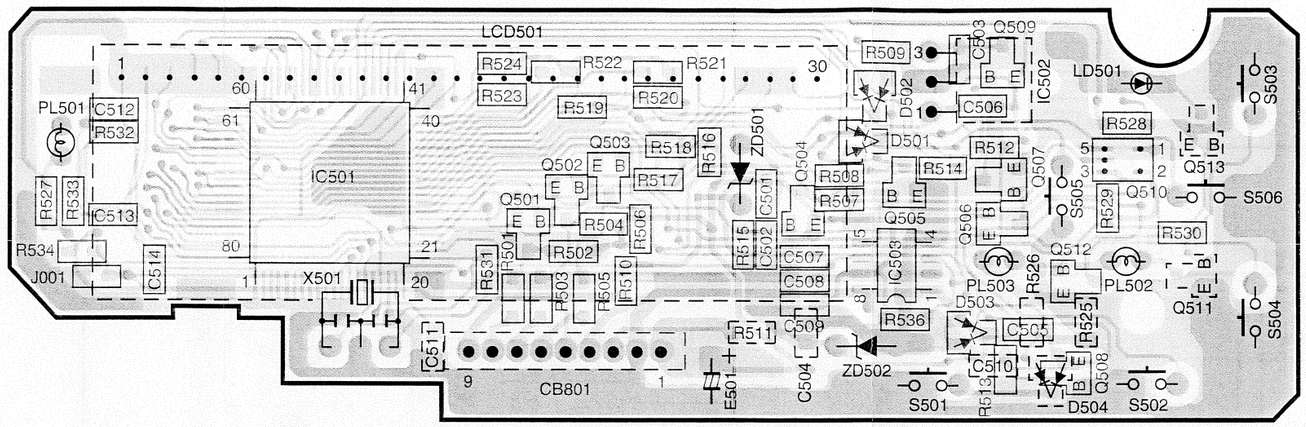


Blue Color Pattern : Foil Side Pattern

Parts Layout on P.C. Boards and Wiring Diagram (2/2)

All P.C. Boards viewed from soldered side.

Remote Display P.C.Board



Orange Color Pattern : Component Side Pattern
Blue Color Pattern : Foil Side Pattern

Schematic Diagram

IC	IC201(2/2) IC003	IC002 IC201(1/2)	IC001	IC501 IC502 IC503
Translistor (Q)	Q008 Q017 Q009 Q010 Q011 Q007 Q201 Q005 Q012 Q013	Q001	Q014 Q015 Q016 Q018 Q019 Q002 Q003 Q006 Q004	Q509 Q505 Q503 Q504 Q508 Q507 Q502 Q506 Q501 Q513 Q512 Q511

ET002
Assy.,ANTENNA CABLE
ANTENNA CABLE
ANTENNA RECEPTACLE
CB004
(CONT IN)
(GND)
(GND)
(CONT OUT)

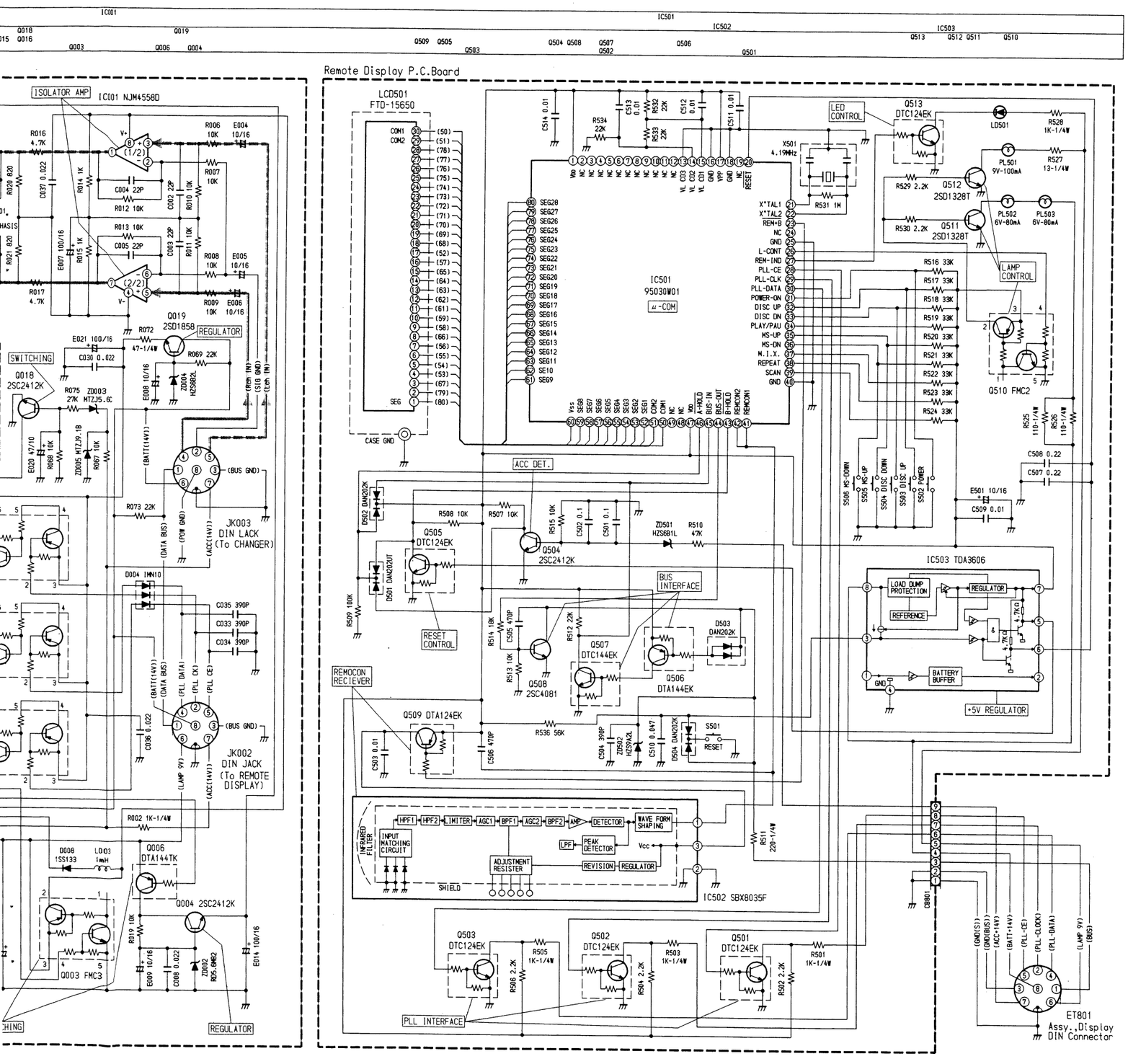
FM Modulator P.C.Board

ISOLATOR AMP
IC001 NJM4558D
Q005 2SC2412KLU
AMP
VR001 50K PHASE
VR002 10K OUTPUT LEVEL
MPX
L-AMP
R-AMP
BUFF
1/2
OSC 38KHz
X001 12P 38KHz
IC002 BA1405
PRE EMPHASIS
S001
Q007 2SC2412KLU
Q008 DTC143XK
RELAY DRIVER
DSP001 DSP-201M
D007 1SS136
RL001 1M-12VK
SWITCHING
Q017 DTA144TK
Limit P.C.Board
FM STEREO MODULATOR
IC201,Q201
LIMITTER CONTROL
Q201 2SK163
Q202 1SS133
IC201 NJM4558M
IC201 NJM4558M
Q018 2SC2412K
SWITCHING
Q019 2SD1858
REGULATOR
ZD003 MTZJ5.6C
ZD004 HZS6B2L
(BATT(14V))
(BUS GND)
(ACC(14V))
(DATA BUS)
(PON GND)
JK003 DIN LACK (To CHANGER)
D004 1HN10
Q009 2SC2814
Q010 2SC2814
Q011 2SC2814
Q012 2SC2412KLU
Q013 2SC2412KLU
Q014 IMD2
Q015 IMD2
Q016 IMD2
IC003 BU2611
PLL
REFERENCE DIVIDER
PRESCALER
MAIN COUNT
PHASE DET CHANGE PUMP
SHIFT REGISTER LATCH
X002 7.2MHz
PLL CONTROL
VCO GENERATOR
L002 FM OSC
VD001 KV1440-2
T.P.1
LPF
REGULATOR
Q002 2SD1266
Q006 DTA144TK
Q004 2SC2412K
Q001 FMC3
Q003 FMC3
SWITCHING
REGULATOR
JK002 DIN JACK (To REMOTE DISPLAY)
(LAMP 9V)
(PLL DATA)
(PLL CK)
(PLL CE)
ACC Lead
BATT Lead
3A
GND Lead
(ACC)
(BATT)
(GND)
CB801
ET001
Assy.,POWER SUPPLY CONNECTOR

Remote Display P.C.Board

LCD501
FTD-15650
CASE GND
IC501
95030W01
μ-COM
LED CONTROL
Q513 DTC124EK
Q512 2SD1328T
Q511 2SD1328T
X501 4.19MHz
ACC DET.
Q505 DTC124EK
Q504 2SC2412K
BUS INTERFACE
RESET CONTROL
Q507 DTC144EK
Q508 2SC4081
Q506 DTA144EK
Q509 DTA124EK
REMOCON RECIEVER
S501 RESET
IC502 SBX8035F
INPUT MATCHING CIRCUIT
PEAK DETECTOR
ADJUSTMENT RESISTER
WAVE FORM SHAPING
REVISION
REGULATOR
Q503 DTC124EK
Q502 DTC124EK
Q501 DTC124EK
PLL INTERFACE
IC503 TDA3606
LOAD DUMP PROTECTION
REFERENCE
BATTERY BUFFER
+5V
CB801

A | B | C | D | E | F | G | H



IC001

1–3	4.7V
4	0V
5–7	4.7V
8	9.4V

IC002

1, 2	3.2V	10	NC
3	NC	11	4.3V
4	0V	12	NC
5	1.3V	13	2.8V
6	1V	14	4.7V
7	NC	15	3.2V
8	2.3V	16	0V
9	4.7V	17, 18	3.2V

IC003

1	2.1V	11	2.2V
2	1.8V	12	4.5V
3–5	0.7V	13	4.6V
6	NC	14	NC
7	3.3V	15	2.1V
8	3.7V	16	0V
9, 10	NC		

IC201

1–3	2.4V
4	0V
5–7	2.4V
8	4.7V

IC502

1	4.9V
2	0V
3	4.9V

IC501

1	4.9V	23	0V
2–12	NC	24	NC
13	0.6V	25	0V
14	2V	26–39	4.9V
15	3.5V	40	0V
16	0V	41, 42	4.9V
17	4.9V	43, 44	0V
18	0V	45	3.9V
19	NC	46	0.2V
20	4.9V	47	4.9V
21	2.7V	48, 49	NC
22	2.1V	50–80	2.8V

IC503

1, 2	NC
3	2.5V
4	0V
5	4V
6, 7	4.9V
8	14V

	E	C	B		E	C	B
Q002	9.6V	14.3V	10.2V	Q019	4.9V	14.3V	5.5V
Q004	4.8V	9.5V	5.4V	Q501	0V	0V	5.1V
Q005	2.2V	4.7V	2.8V	Q502	0V	0V	5.1V
Q006	9.3V	9.1V	0V	Q503	0V	0V	5.1V
Q007	1.6V	5.2V	2.2V	Q504	0V	0V	0.6V
Q008	0V	0V	1.8V	Q505	0V	0V	4.2V
Q009	0.4V	6V	1V	Q506	5.1V	0V	5.1V
Q010	0V	2.4V	0.7V	Q507	0V	5.1V	0V
Q011	3.1V	7.6V	3.8V	Q508	0V	8.3V	0V
Q012	0V	3.9V	1.6V	Q509	4.9V	4.9V	0V
Q013	1.6V	8.3V	2V	Q511	0V	0V	0.8V
Q017	4.6V	4.5V	0V	Q512	0V	0V	0.8V
Q018	0V	0V	0.6V	Q513	0V	0V	4.9V

	S	G	D
Q201	1V	0V	0.9V

	1	2	3	4	5
Q001	NC	14V	14V	4.6V	0V
Q003	NC	9.5V	9.6V	3.8V	0V
Q510	NC	4.9V	4.9V	4.9V	0V

	1	2	3	4	5	6
Q014	0V	0.7V	4.8V	4.8V	4.8V	0V
Q015	0V	0.7V	4.8V	4.8V	4.8V	0V
Q016	0V	0.7V	4.8V	4.8V	4.8V	0V

[Measuring Conditions]

- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multi Voltmeter
- Measuring Point Reference : Between Ground
- Measuring Conditions : CD : Be Playing back the 1st. Music of the Test CD (TCD-782)
  TUNER : No signal input
  FM : 88.7MHz

NOTE:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1{,}000{,}000}$

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : μ F=microfarads,pF=picofarads

Abbreviations

RES.= Resistor	CAP.= Capacitor
C.F.= Carbon Film	ELY.= Electrolytic
M.F.= Metal Film	CER.= Ceramic
M.O.= Metal Oxide Film	MYL.= Mylar
M.P.= Metal Plate	TAN.= Tantalum
TR. = Transistor	POLY.= Polystyrol
TRANS.= Transformer	PP. = Polypropylene
CP. = Chip	PLT.= Polyethylene
	PF. = Polyester Film

Symbol No.	Part No.	Description
FM Modulator P.C.Board		
IC's		
IC001	51E23566S01	NJM4558D
IC002	51T55534W01	BA1405
IC003	51T55677W01	BU2611
Transistors		
Q001	48T73888F13	CP., FMC3
Q002	48T56031F01	2SD1266
Q003	48T73888F13	CP., FMC3
Q004	48E23845S01	CP., 2SC2412K
Q005	48T25196W01	CP., 2SC2412KLU
Q006	48E05937S03	CP., DTA144TK
Q007	48T25196W01	CP., 2SC2412KLU
Q008	48E22095S01	CP., DTC143XK
Q009	48T55538W02	CP., 2SC2814
Q010	48T55538W02	CP., 2SC2814
Q011	48T55538W02	CP., 2SC2814
Q012	48T25196W01	CP., 2SC2412KLU
Q013	48T25196W01	CP., 2SC2412KLU
Q014	48T16335W03	CP., IMD2
Q015	48T16335W03	CP., IMD2
Q016	48T16335W03	CP., IMD2
Q017	48E05937S03	CP., DTA144TK
Q018	48E23845S01	CP., 2SC2412K
Q019	48E09401S01	2SD1858
Diodes / Surge Protector		
D001	48E23590S01	10E2
D002	48E22916S01	1SS133
D004	48E11277S01	CP., IMN10
D005	48E22916S01	1SS133
D007	48E23543S01	1SS136
D008	48E22916S01	1SS133
D009	48E22916S01	1SS133
ZD001	48E27527S01	Zener, HZS11A1L
ZD002	48T62934F22	Zener, CP. RD5.6MB2
ZD003	48E24378S01	Zener, MTZJ5.6C
ZD004	48E27526S01	Zener, HZS6B2L
ZD005	48E22162S01	Zener, MTZJ9.1B
VD001	48E25300S01	Varactor, CP. KV1440-2
DSP001	48T81909F01	Surge Protector, DSP-201M
Coils		
L001	24E23567S01	Choke
L002	24E23568S01	FM OSC
L003	24E09406S01	Inductor, 1mH
L004	24E23584S01	Inductor, CP. 0.22μH
Crystals		
X001	91E25242S01	38KHz
X002	91E24846S01	7.2MHz
Relay / Thermistor		
RL001	80T55536W01	Relay, UM1-12WK
TH001	48T35484W11	CP., 100K ohm
Switch		
S001	40E25243S01	Slide, SSS722SA011 (PRE-EMPHASIS)
Capacitors		
C001	08E22088S01	CP., 0.1μF
E001	23E09551S07	ELY., 1000μF / 16V
C002	08E20550S01	CP., 22pF
E002	23E22099S01	ELY., 10μF / 16V
C003	08E20550S01	CP., 22pF
E003	23E22099S01	ELY., 10μF / 16V
C004	08E20550S01	CP., 22pF
E004	23E22099S01	ELY., 10μF / 16V
C005	08E20550S01	CP., 22pF
E005	23E22099S01	ELY., 10μF / 16V
E006	23E22099S01	ELY., 10μF / 16V
E007	23E23585S01	ELY., 100μF / 16V
C008	08E22085S01	CP., 0.022μF
E008	23E08383S08	ELY., 10μF / 16V
C009	08E23583S01	CP., 1000pF
E009	23E08383S08	ELY., 10μF / 16V
C010	08E23583S01	CP., 1000pF
E010	23E22099S01	ELY., 10μF / 16V
C011	08E22085S01	CP., 0.022μF
E011	23E22099S01	ELY., 10μF / 16V
C012	08E08423S07	CP., 220pF
C013	08E23583S01	CP., 1000pF
E013	23E08383S08	ELY., 10μF / 16V
C014	08E23578S01	CP., 12pF
E014	23E23585S01	ELY., 100μF / 16V
E015	23E22099S01	ELY., 10μF / 16V
C016	08E22159S01	PF., 1μF
E016	23E23587S01	ELY., 47μF / 16V
C018	08E23577S01	CP., 1pF
C019	08E08423S02	CP., 2pF
E019	23E23589S01	ELY., 2200μF / 10V
C020	08E22085S01	CP., 0.022μF
E020	23E25250S01	ELY., 47μF / 10V
E021	23E23588S01	ELY., 100μF / 16V
C022	08E23581S01	CP., 33pF
C023	08E23579S01	CP., 18pF
C024	08E08423S03	CP., 10pF
C025	08E20550S01	CP., 22pF
C026	08E08423S02	CP., 2pF
C027	08E22085S01	CP., 0.022μF
C028	08E22080S01	CP., 470pF
C029	08E22083S01	CP., 0.01μF
C030	08E22085S01	CP., 0.022μF
C031	08E23578S01	CP., 12pF
C032	08E23578S01	CP., 12pF
C033	08E23557S01	CP., 390pF
C034	08E23557S01	CP., 390pF
C035	08E23557S01	CP., 390pF
C036	08E22085S01	CP., 0.022μF
C037	08E22085S01	CP., 0.022μF
C038	08E08577S02	CP., 1500pF
C039	08E23583S01	CP., 1000pF
C040	08E08577S02	CP., 1500pF
C041	08E23583S01	CP., 1000pF
C042	08E23579S01	CP., 18pF
C043	08E23579S01	CP., 18pF
C044	08E23582S01	CP., 2pF
C045	08E22159S01	PF., 1μF
C046	08E22088S01	CP., 0.1μF
C099	23E25249S01	ELY., (B.P) 22μF / 16V
Resistors		(All resistors are chip 1/10W±5% unless otherwise noted.)
R001	06E22929S01	3.3K ohm 1/4W
R004	06E22036S01	22K ohm 1/8W
R005	06E23901S01	220 ohm 1/4W
R006	06E20903S01	10K ohm
R007	06E20903S01	10K ohm
R008	06E20903S01	10K ohm
R009	06E20903S01	10K ohm
R010	06E20903S01	10K ohm
R011	06E20903S01	10K ohm
R012	06E20903S01	10K ohm
R013	06E20903S01	10K ohm
R014	06E22048S01	1K ohm
R015	06E22048S01	1K ohm
R016	06E22033S01	4.7K ohm 1/8W
R017	06E22033S01	4.7K ohm 1/8W
R019	06E20903S01	10K ohm
R020	06E23572S01	820 ohm
R021	06E23572S01	820 ohm
R022	06E22055S01	4.7K ohm
R025	06E22055S01	4.7K ohm
R028	06E22054S01	3.9K ohm
R029	06E22030S01	1K ohm 1/8W
R030	06E22050S01	1.8K ohm
R031	06E22504S01	2.2K ohm 1/8W
R032	06E23574S01	180K ohm
R033	06E22052S01	2.7K ohm
R036	06E23575S01	330K ohm
R037	06E22509S01	150K ohm
R038	06E22050S01	1.8K ohm
R039	06E22049S01	1.2K ohm
R041	06E20903S01	10K ohm
R044	06E22954S01	68 ohm 1/4W
R045	06E22548S01	470 ohm 1/4W
R046	06E22051S01	2.2K ohm
R047	06E22065S01	100K ohm
R048	06E21161S01	100 ohm 1/8W
R049	06E22067S01	470K ohm
R050	06E22509S01	150K ohm
R051	06E22050S01	1.8K ohm
R052	06E22043S01	330 ohm
R053	06E23571S01	47 ohm

Symbol No.	Part No.	Description
E005	23E22099S01	ELY., 10µF / 16V
E006	23E22099S01	ELY., 10µF / 16V
E007	23E23585S01	ELY., 100µF / 16V
C008	08E22085S01	CP., 0.022µF
E008	23E08383S08	ELY., 10µF / 16V
C009	08E23583S01	CP., 1000pF
E009	23E08383S08	ELY., 10µF / 16V
C010	08E23583S01	CP., 1000pF
E010	23E22099S01	ELY., 10µF / 16V
C011	08E22085S01	CP., 0.022µF
E011	23E22099S01	ELY., 10µF / 16V
C012	08E08423S07	CP., 220pF
C013	08E23583S01	CP., 1000pF
E013	23E08383S08	ELY., 10µF / 16V
C014	08E23578S01	CP., 12pF
E014	23E23585S01	ELY., 100µF / 16V
E015	23E22099S01	ELY., 10µF / 16V
C016	08E22159S01	PF., 1µF
E016	23E23587S01	ELY., 47µF / 16V
C018	08E23577S01	CP., 1pF
C019	08E08423S02	CP., 2pF
E019	23E23589S01	ELY., 2200µF / 10V
C020	08E22085S01	CP., 0.022µF
E020	23E25250S01	ELY., 47µF / 10V
E021	23E23588S01	ELY., 100µF / 16V
C022	08E23581S01	CP., 33pF
C023	08E23579S01	CP., 18pF
C024	08E08423S03	CP., 10pF
C025	08E20550S01	CP., 22pF
C026	08E08423S02	CP., 2pF
C027	08E22085S01	CP., 0.022µF
C028	08E22080S01	CP., 470pF
C029	08E22083S01	CP., 0.01µF
C030	08E22085S01	CP., 0.022µF
C031	08E23578S01	CP., 12pF
C032	08E23578S01	CP., 12pF
C033	08E23557S01	CP., 390pF
C034	08E23557S01	CP., 390pF
C035	08E23557S01	CP., 390pF
C036	08E22085S01	CP., 0.022µF
C037	08E22085S01	CP., 0.022µF
C038	08E08577S02	CP., 1500pF
C039	08E23583S01	CP., 1000pF
C040	08E08577S02	CP., 1500pF
C041	08E23583S01	CP., 1000pF
C042	08E23579S01	CP., 18pF
C043	08E23579S01	CP., 18pF
C044	08E23582S01	CP., 2pF
C045	08E22159S01	PF., 1µF

Symbol No.	Part No.	Description
C046	08E22088S01	CP., 0.1µF
C099	23E25249S01	ELY., (B.P) 22µF / 16V

Resistors		(All resistors are chip 1/10W±5% unless otherwise noted.)
R001	06E22929S01	3.3K ohm 1/4W
R004	06E22036S01	22K ohm 1/8W
R005	06E23901S01	220 ohm 1/4W
R006	06E20903S01	10K ohm
R007	06E20903S01	10K ohm
R008	06E20903S01	10K ohm
R009	06E20903S01	10K ohm
R010	06E20903S01	10K ohm
R011	06E20903S01	10K ohm
R012	06E20903S01	10K ohm
R013	06E20903S01	10K ohm
R014	06E22048S01	1K ohm
R015	06E22048S01	1K ohm
R016	06E22033S01	4.7K ohm 1/8W
R017	06E22033S01	4.7K ohm 1/8W
R019	06E20903S01	10K ohm
R020	06E23572S01	820 ohm
R021	06E23572S01	820 ohm
R022	06E22055S01	4.7K ohm
R025	06E22055S01	4.7K ohm
R028	06E22054S01	3.9K ohm
R029	06E22030S01	1K ohm 1/8W
R030	06E22050S01	1.8K ohm
R031	06E22504S01	2.2K ohm 1/8W
R032	06E23574S01	180K ohm
R033	06E22052S01	2.7K ohm
R036	06E23575S01	330K ohm
R037	06E22509S01	150K ohm
R038	06E22050S01	1.8K ohm
R039	06E22049S01	1.2K ohm
R041	06E20903S01	10K ohm
R044	06E22954S01	68 ohm 1/4W
R045	06E22548S01	470 ohm 1/4W
R046	06E22051S01	2.2K ohm
R047	06E22065S01	100K ohm
R048	06E21161S01	100 ohm 1/8W
R049	06E22067S01	470K ohm
R050	06E22509S01	150K ohm
R051	06E22050S01	1.8K ohm
R052	06E22043S01	330 ohm
R053	06E23571S01	47 ohm

Symbol No.	Part No.	Description
R054	06E20903S01	10K ohm
R055	06E22053S01	3.3K ohm
R056	06E20903S01	10K ohm
R057	06E22034S01	10K ohm 1/8W
R058	06E22128S01	8.2K ohm 1/8W
R059	06E20903S01	10K ohm
R060	06E22049S01	1.2K ohm
R061	06E20903S01	10K ohm
R062	06E22060S01	22K ohm
R063	06E22060S01	22K ohm
R064	06E22060S01	22K ohm
R065	06E22127S01	2.7K ohm 1/8W
R066	06E22127S01	2.7K ohm 1/8W
R067	06E22034S01	10K ohm 1/8W
R068	06E20903S01	10K ohm
R069	06E22036S01	22K ohm 1/8W
R070	06E22063S01	56K ohm
R071	06E22063S01	56K ohm
R073	06E22060S01	22K ohm
R074	06E23573S01	82K ohm
R075	06E20904S01	27K ohm
R076	06E22053S01	3.3K ohm
R077	06E22504S01	2.2K ohm 1/8W
R078	06E20903S01	10K ohm
VR001	18E25247S01	Variable, 50K ohm (PHASE)
VR002	18E25241S01	Volume, Rotary 10K ohm (OUTPUT LEVEL)

Remote Display P.C.Board

IC's

IC501	51T95030W01	MC68HC05L5
IC502	51T95040W01	SBX8035F
IC503	51T85450W01	TDA3606

Transistors

Q501	48E10426S01	CP., DTC124EK
Q502	48E10426S01	CP., DTC124EK
Q503	48E10426S01	CP., DTC124EK
Q504	48E23845S01	CP., 2SC2412K
Q505	48E10426S01	CP., DTC124EK
Q506	48E23697S01	CP., DTA144EK
Q507	48E22555S01	CP., DTC144EK
Q508	48T94582F01	CP., 2SC4081

Symbol No.	Part No.	Description
Q509	48E22092S01	CP., DTA124EK
Q510	48E11274S01	CP., FMC2
Q511	48T63788F04	CP., 2SD1328T
Q512	48T63788F04	CP., 2SD1328T
Q513	48E10426S01	CP., DTC124EK

Diodes

D501	48E23558S01	CP., DAN202UT
D502	48E10945S01	CP., DAN202K
D503	48E10945S01	CP., DAN202K
D504	48E10945S01	CP., DAN202K
ZD501	48T25766W04	Zener, HZS6B1L
ZD502	48T25766W20	Zener, HZS9A2L

Switches

S501	40T75234W01	Tact, SKQNAC (RESET)
S502	40T75234W01	Tact, SKQNAC (POWER)
S503	40T75234W01	Tact, SKQNAC (DISC UP)
S504	40T75234W01	Tact, SKQNAC (DISC DOWN)
S505	40T75234W01	Tact, SKQNAC (MS-UP)
S506	40T75234W01	Tact, SKQNAC (MS-DOWN)

Crystal

X501	91T15285W01	CER., Lock 4.19MHz

Lamps/LED

PL501	65T85125W03	9V-100mA
PL502	65T75232W01	6V-80mA
PL503	65T75232W01	6V-80mA
LD501	48T65477W02	LED, SML-010LTT87 (RED)

Capacitors

C501	08E22088S01	CP., 0.1µF
E501	23E25301S01	ELY., 10µF / 16V
C502	08E22088S01	CP., 0.1µF
C503	08E22083S01	CP., 0.01µF
C504	08E23557S01	CP., 390pF
C505	08E22080S01	CP., 470pF
C506	08E22080S01	CP., 470pF
C507	08E25236S01	CP., 0.22µF

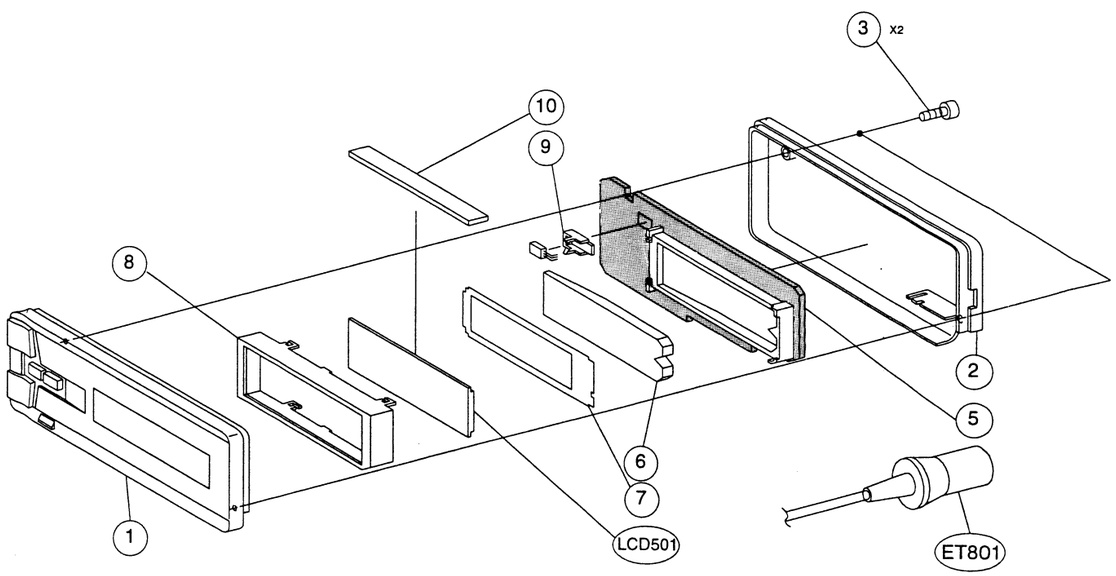
Symbol No.	Part No.	Description
C508	08E25236S01	CP., 0.22μF
C509	08E22083S01	CP., 0.01μF
C510	08E22087S01	CP., 0.047μF
C511	08E22083S01	CP., 0.01μF
C512	08E22083S01	CP., 0.01μF
C513	08E22083S01	CP., 0.01μF
C514	08E22083S01	CP., 0.01μF
Resistors		(All resistors are chip 1/10W±5% unless otherwise noted.)
R501	06E22074S01	1K ohm 1/4W
R502	06E22504S01	2.2K ohm 1/8W
R503	06E22074S01	1K ohm 1/4W
R504	06E22051S01	2.2K ohm
R505	06E22074S01	1K ohm 1/4W
R506	06E22051S01	2.2K ohm
R507	06E20903S01	10K ohm
R508	06E20903S01	10K ohm
R509	06E22065S01	100K ohm
R510	06E22062S01	47K ohm
R511	06E20752S01	220 ohm 1/4W
R512	06E22060S01	22K ohm
R513	06E20903S01	10K ohm
R514	06E22059S01	18K ohm
R515	06E20903S01	10K ohm
R516	06E22061S01	33K ohm
R517	06E22061S01	33K ohm
R518	06E22061S01	33K ohm
R519	06E22061S01	33K ohm
R520	06E22061S01	33K ohm
R521	06E22061S01	33K ohm
R522	06E22061S01	33K ohm
R523	06E22061S01	33K ohm
R524	06E22061S01	33K ohm
R525	06E25235S01	110 ohm 1/4W
R526	06E25235S01	110 ohm 1/4W
R527	06E25234S01	13 ohm 1/4W
R528	06E22074S01	1K ohm 1/4W
R529	06E22051S01	2.2K ohm
R530	06E22051S01	2.2K ohm
R531	06E22068S01	1M ohm
R532	06E22060S01	22K ohm
R533	06E22060S01	22K ohm
R534	06E22060S01	22K ohm
R536	06E25388S01	56K ohm 1/8W

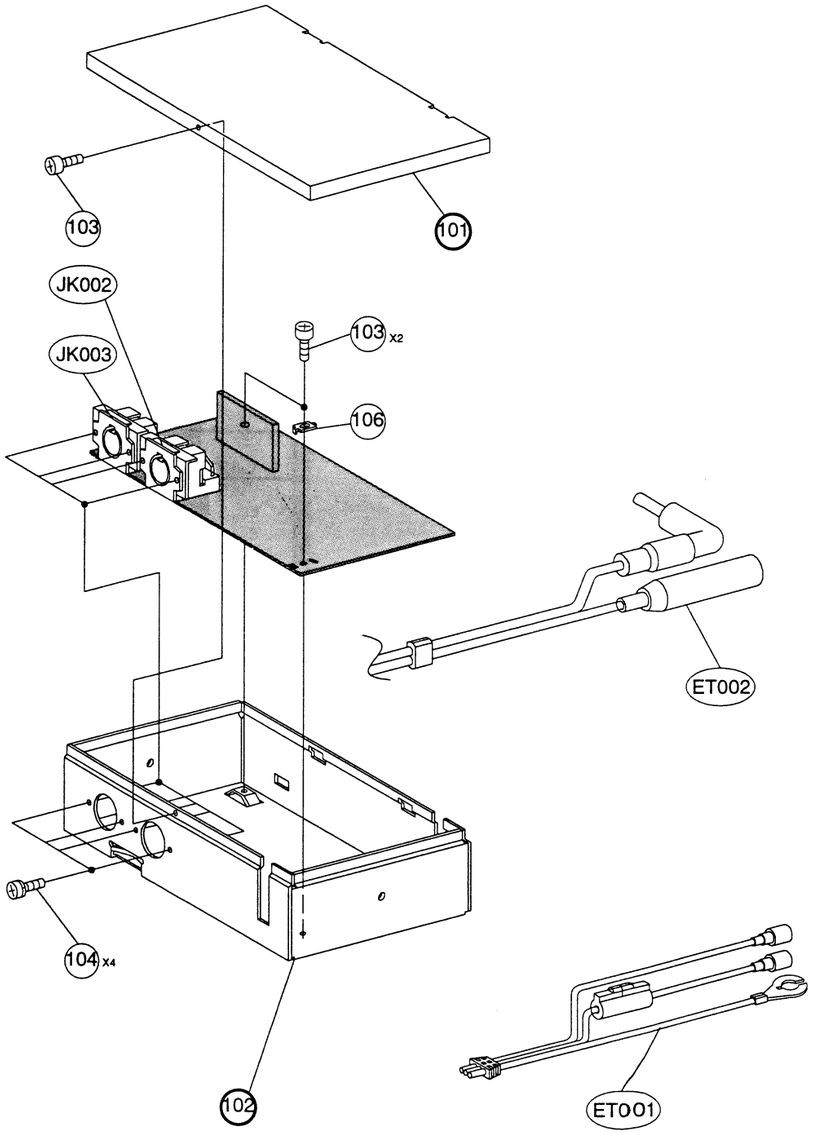
Symbol No.	Part No.	Description
Limit P.C.Board		
IC		
IC201	51E20551S01	NJM4558M
Transistor		
Q201	48T74193F05	FET, 2SK163
Diodes		
D201	48E22916S01	1SS133
D202	48E22916S01	1SS133
Capacitors		
C201	08E24197S01	CP., 0.022μF
E201	23E09402S05	ELY., 4.7μF / 25V
C202	08E20550S01	CP., 22pF
E202	23E09402S05	ELY., 4.7μF / 25V
C203	08E22085S01	CP., 0.022μF
C204	08E22085S01	CP., 0.022μF
C205	08E20767S01	CP., 3300pF
C206	08E22085S01	CP., 0.022μF
C207	08E22085S01	CP., 0.022μF
Resistors		(All resistors are chip 1/10W±5% unless otherwise noted.)
R201	06E22034S01	10K ohm 1/8W
R202	06E20903S01	10K ohm
R203	06E21164S01	1.5K ohm
R204	06E22065S01	100K ohm
R205	06E22060S01	22K ohm
R206	06E22037S01	100K ohm 1/8W
R207	06E22060S01	22K ohm
R208	06E21164S01	1.5K ohm
R209	06E22065S01	100K ohm
R210	06E22065S01	100K ohm
R211	06E22065S01	100K ohm
R212	06E22057S01	8.2K ohm
R213	06E22051S01	2.2K ohm

Symbol No.	Part No.	Description
Miscellaneous		
ET001	01E23565S01	Assy., Power Supply Connector
ET002	01E25216S01	Assy., Antenna Cable
ET801	01E25263S01	Assy., DIN Connector 8P
JK002	09E23570S01	DIN Jack 8P (To REMOTE DISPLAY)
JK003	09E23569S01	DIN Jack 8P (To CHANGER)
LCD501	65T95171W02	LCD Display

Symbol No.	Part No.	Description

Exploded View (Cabinet)





Cabinet Assembly Parts List

NOTE:Parts without partnumbers are not supplied.

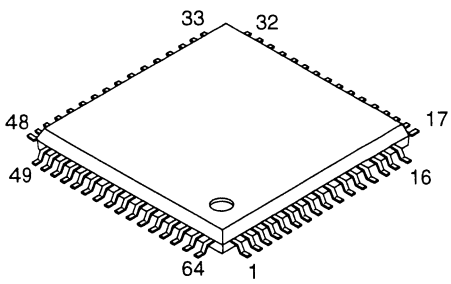
Symbol No.	Index	Part No.	Description
Remote Display Unit			
1	4-A	01E25429S01	Assy., Nosepiece
2	4-D	15E25230S01	Nose, Bottom
3	3-D	03E23665S01	Screw, Tapping (M1.7X12)
5	4-D	15E22999S01	Case, LCD
6	4-C	61A22998S01	Lens, LCD
7	4-C	26A70309W02	Reflector, Sheet
8	3-A	15E25232S01	Cover, LCD
9	3-C	43E25233S01	Spacer, Remote
10	3-C	75T75143W02	Rubber, Electric

Symbol No.	Index	Part No.	Description
FM Modulator Unit			
103	2-F	03E22575S01	Screw, Pan (M2.6X5)
104	4-F	03E09441S01	Screw, W/Washer (M2.6X8)

Semi-Conductor Lead Identifications

NOTE : For the parts not mentioned, refer to the Schematic Diagram.

95030W01 : IC501



PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O	PIN NO.	CODE ADDRESS	I/O
1	V_{DD}	—	21	X'TAL1	I	41	REMOCON1	I	61	SEG9	O
2	NC	—	22	X'TAL2	O	42	REMOCON2	I	62	SEG10	O
3	NC	—	23	$\overline{\text{REM+B}}$	O	43	$\overline{\text{B-HOLD}}$	I	63	SEG11	O
4	NC	—	24	NC	—	44	BUS-OUT	O	64	SEG12	O
5	NC	—	25	GND	—	45	BUS-IN	I	65	SEG13	O
6	NC	—	26	L-CONT	O	46	$\overline{\text{A-HOLD}}$	I	66	SEG14	O
7	NC	—	27	REM-IND	O	47	V_{DD}	—	67	SEG15	O
8	NC	—	28	PLL-CE	O	48	NC	—	68	SEG16	O
9	NC	—	29	PLL-CLK	O	49	NC	—	69	SEG17	O
10	NC	—	30	PLL-DATA	O	50	COM1	O	70	SEG18	O
11	NC	—	31	POWER-ON	I	51	COM2	O	71	SEG19	O
12	NC	—	32	DISC UP	I	52	SEG1	O	72	SEG20	O
13	VLCD3	I	33	DISC DN	I	53	SEG2	O	73	SEG21	O
14	VLCD2	I	34	PLAY / PAU	I	54	SEG3	O	74	SEG22	O
15	VLCD1	I	35	MS-UP	I	55	SEG4	O	75	SEG23	O
16	GND	—	36	MS-DN	I	56	SEG5	O	76	SEG24	O
17	V_{PP}	—	37	M.I.X.	I	57	SEG6	O	77	SEG25	O
18	GND	—	38	REPEAT	I	58	SEG7	O	78	SEG26	O
19	NC	—	39	SCAN	I	59	SEG8	O	79	SEG27	O
20	$\overline{\text{RESET}}$	I	40	GND	—	60	V_{SS}	—	80	SEG28	O